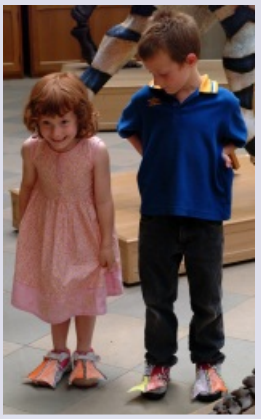
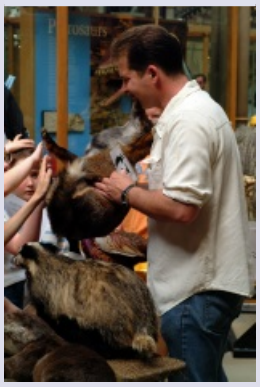
Oxford University Museum of Natural History

Annual Report 2003-2004







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Parks Road, Oxford, OX1 3PW

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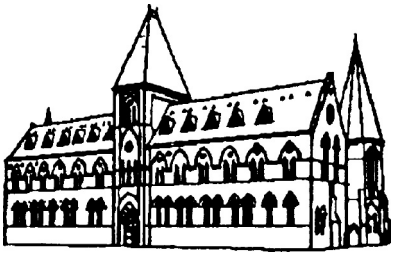

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Cover photographs: Jim Kennedy and Bethia Thomas
Compilation by Bethia Thomas

Chairman's Report

This is my last report as Chairman of the Visitors. I am delighted that Sir John Hanson, Warden of Green College, is taking up the baton. I am sure that he will enjoy this most pleasant of University duties as much as I have. I have greatly valued the support of the Museum staff and the Visitors, and have been delighted to work with our first two Directors, Keith Thomson and Jim Kennedy.

During my time as Chairman we have benefited from two highly constructive reviews, and we have seen an enormous increase in the activities of the Museum and the number of people who have come through its doors. In 1992-3 when I took over the Chair, there were 119,555 visitors, plus 4,619 pupils in organized visits. There were no education officers and no website. In 2003-4, eleven years on, our visitor numbers had increased by 244%, school pupils in organised visits by 385%. Grants from outside bodies totalled £62,000 in 1992-3, and has increased by 260%. We have an enthusiastic education team, and an extensive website with educational pages and online databases of tens of thousands of specimens. There has been a comparable flourishing of activities across the spectrum of museum endeavours. We have even seen, after what appeared to be interminable delays, the installation of facilities for the disabled and of a lift! The leaking roof, however, continues to be written on my heart, like Calais on the heart of Mary Queen of Scots. The Museum is one of the great treasures of Oxford, in terms of its fabric, its collections and its personnel. It has been a rare pleasure to be associated with it. I wish it well.

Andrew Goudie
Chairman of Board of Visitors

Director's Report

This report encompasses my first ten months as Director in succession to Keith Thomson, who retired at the end of September 2003. I owe a debt of gratitude to Keith for his support during the transition period, and for his wise advice thereafter, for in spite of 37 years in Oxford (and 28 in the Museum), a whole new world of surprises (both pleasant, and less-so!) have revealed themselves. In feeling my way into the job, I have received support from across the Museum, and I am in debt to all staff, and to the Visitors for easing my way.

Particular thanks go to Andrew Goudie, Chairman of the Visitors (and their predecessor, the Committee of Scientific Collections) since 1992. He retires as Chairman at the end of September, but our links will not end however, as he has recently accepted the Chair of *Oxford Inspires*, an organisation with which we will continue to interact.

As to the Museum, our visitor numbers remain healthy (291,759 in 2003-4, versus 282,855 in 2002-3, a 4% increase). At times we have seemed to reach and exceed capacity, as overseas schools and other groups based at Oxford Brookes University, Radley College and elsewhere, make use of our facilities. There is a clear need to

develop procedures with those bringing organised groups to the Museums of the University to maximise the benefits to those groups, without intruding on the comfort of the general visitor.

Our display programme progresses, under the steady hand of Kevin Walsh. Lack of storage means that areas of the Court resemble a builder's yard (of as much interest to the visitor as are the displays, it sometimes seems). Our team of Chris Burras, Bill Richey and Peter Johnson have coordinated the construction and refurbishment of new and existing display cases around the south side of the Court for new displays on the 'Rock Cycle', funded by the Trust for Oxfordshire's Environment. The display work supported by the Department of Culture, Media and Sport/Wolfson Foundation was completed on time and in budget at the end of March. Our contribution to the project continues, and our earth materials aisle, with spectacular touchables, and new fluorescent mineral displays, progresses. Planning, specimen acquisition, and fitting out of new primate displays was completed. Juliet Hay has displayed great skill in installing specimens. Work on new Lower Vertebrate displays is in hand.

Our access and outreach activities flourish, and our website development continues apace. A £109,170 grant from the Designation Challenge Fund will allow us to expand the L*earning Zone* to include material for students at Key Stages 3 and 4.

There is progress too behind the scenes. The first phase of conversion of space formerly occupied by Inorganic Chemistry proceeds, and a new lift, office, research, and storage space will become available in the new academic year. Negotiations for the release of further space continue.

All of our activities are dependant on budgetary constraints. The good news is that university museums are to receive VAT exemption (although the details remain unclear). There is a promise of increased Hub funding from March 2006 (amount and details remain unknown). The bad news is that all of our core AHRB/HEFCE grant is expended on salaries. Everything else we do has to be funded from other sources. Hiring of the Museum facilities for receptions, dinners, book launches, and filming have become an essential activity. There is a delicate balance to be maintained between the functions of a Museum and Academic Department and such initiatives. Refurbishment of our lecture theatre is imminent, and revenues from this source may increase. All these activities increase pressure on administrative, portering and cleaning staff, whose support and willingness to work long and unsociable hours is an important contribution to the Museum team.

Our thanks to all those who have supported the Museum financially.

Jim Kennedy
Director

Part I. Central Services Report

Exhibitions and Events

On the Upper Gallery we continued to host a variety of temporary exhibitions, which typically changed every 2 months. In contrast to the previous exhibition of stunning photographs by Giles Revell, which was on show at the end of last year, Nigel Hughes used more traditional techniques for his exhibition, 'Curassows, Guans and Chachalacas'. The pictures featured full size oil paintings of all 50 species of Cracidae, the most threatened bird family in the Americas, ranging from northern Argentina to Texas. The work had been done from live specimens and habitat studies made on 11 field trips. No single painter has depicted this entire family before. Our second exhibition showed the work of one of the finest natural history illustrators working today, Richard Lewington. 'Butterflies, Bugs and Beasts' demonstrated Richard's immense artistry and detailed observations with a deep understanding of the secret lives of the creatures he paints, to create the most accurate illustrations ever produced. From Jaunary 2004 we showed 'Caught in Time ...' by Dr Heather Maclennan, who had painted fossilised remains of some of the creatures living in the seas of the Mesozoic and Palaeozoic eras. Next on the schedule was 'Visions of Science' run by Novartis, the healthcare company, with support this year from NESTA - the National Endowment for Science, Technology and the Arts - displayed images selected from the Visions of Science Photographic Awards and showed the very best in science photography. The year was rounded off by 'Medical Research Revealed'. This MRC funded project, executed by the artist Dr Lizzy Burns, gave an insight into medical research from a scientist's eye view.

During the year there have also been substantial improvements to our permanent displays. These include installation or planning of new displays on Finding out about Minerals, Industrial Minerals, Metallic Ores, and British Minerals; new touchables, from a large meteorite to giant mineral specimens, and a 3.6 billion-year old Isua Gneiss from West Greenland. Cases were constructed/refurbished/purchased, and specimens acquired/restored for new displays on primates and human evolution, and the rock cycle.

Once again staff were involved with a number of filming assignments both within the Museum and during outreach assignments. Additional revenue was generated as a result of location fees for numerous programmes. The Museum featured in *Great Scientists* produced for WAG TV filmed in November, and Spire Films filmed a sequence at the museum for a documentary for Channel 4, entitled *Worst Jobs in History*, presented by Tony Robinson. The series looked at a variety of different jobs in each era from the Dark Ages, through to the Victorians, and shed light on the social history of those times. The Victorian programme looked at the job of the taxidermist, and filmed some examples of our mounted animals. In March BBC Bristol highlighted another famous event at the Museum, the first radio transmission in 1894. The programme featured the BBC's Radio 4 presenter, Patrick Muirhead, talking about his great-great uncle and Oliver Lodge. A large television crew from Darlow Smithson Ltd was present in the Museum at the beginning of July to film sequences for the programme *Dragons*, featuring our *Tyrannosaurus rex* head, with additional features created by Jez Harris and his team at Crawley Creatures.

The Museum's lecture theatre, gallery and court were hired out for 60 events during the year, which helped to raise much needed funds. University memorial lectures were held for Warburg, Bernard Tucker and Dorothy Hodgkins, and talks and a reception were held to launch the Oxford Genetics Knowledge Park in April 2004. The Ashmolean Natural History Society held their usual series of children's Christmas lectures and Bill Sheehan gave a public talk on "The Transit of Venus" in June 2004. The 51st *Symposium of Vertebrate Palaeontology and Comparative Anatomy* was held here in September 2003. Borders Bookshop filled the lecture theatre to launch books for Ray Mears, Philip Pullman and Dave Scott, which brought in an interesting spectrum of visitors. The lecture theatre was also used daily throughout the academic terms for Mathematics and Chemistry Departments' undergraduate lectures.

Professor Simpson gave numerous interviews on national and international media on locust swarms and human obesity.

Dr McGavin was the scientific consultant on *Infested*, a four-part documentary about the animal species that share our homes shown on the ITV network. He took part in *The Big Question – Evolution* presented by Richard Dawkins on Channel 4, was interviewed on the Huxley Room for Robyn William's *Science Show* on Australian National Radio and contributed to a discussion programme on species decline in the UK for *The Material World* on Radio 4.

Mr O'Toole was interviewed on Radio Leicester on the importance of pollinators in landscape ecology and crop production, and was interviewed by Channel 6TV on the role of mason bees as managed pollinators in fruit production. Mr O'Toole also took part in the BBC2 programme *Working Lunch* where he talked about the Oxford Bee Company as the first low tech spin-out from any British university in which the products of research can be bought over the counter.

Dr Pont gave an interview on the Blandford Fly (a black fly species) for BBC Radio Oxford and together with his collaborator, Dr Doreen Werner from Berlin, recorded an item on this biting simullid fly for BBC TV South. The black fly problem became the subject of considerable media interest, with articles appearing in *The Independent on Sunday*, *The Times*, several Gloucestershire and Wiltshire papers.

General Education

Schools and Family Education and Outreach

The last year has seen continued growth and development of the education department and increased collaboration with the other University museums and collections.

Schools
The school visitor numbers have continued to rise with 17,819 students visiting us in organised groups, the majority of which receive a taught session from an education officer.

We continue to develop new sessions in consultation with teachers. A particularly innovative primary school session has been to approach the curriculum topic of materials and their properties through 'Dinosaur Trapping'. In addition to covering the science curriculum, this session supports creative and cross-curricular learning.

Our primary to secondary transfer project 'Making Museums' which is run jointly with the Pitt Rivers Museum (and was piloted in 2003) was run again, this time with the Blackbird Leys partnership of schools. The project involved every child in Year 6 in the area spending a full day in the museum and receiving an outreach visit by education staff. Once again the evaluation of the project by staff and pupils was very positive.

In response to requests from teachers, the Museum and the Public Relations Office ran 'Bug Quest 2'. This involved 66 Oxfordshire primary schools collecting data which was analysed by Entomological collections staff and then made available on the museum website. Many schools took advantage of visiting the Museum for a 'Bug Quest' teaching session or received an outreach visit by Dr McGavin or education staff.

We produced a new leaflet for secondary schools and are introducing new sessions including a Key Stage 4 session on the 'Great Debate' and 'Ideas and Evidence in Science'. A large number of 'Access' groups have visited and received guided tours from education officers. With these groups particularly in mind, we have developed an evolution guide to the Museum, relating key concepts to specimens on display.

The sixth form study day programme was well attended as usual, with 3 days held this year with a balance of lectures and visits to departments and collections. A new topic of 'Parasites' was introduced in March, when Dr McGavin gave a particularly graphic and well received lecture.

Over the last year we have increased our courses for teachers, running sessions both within the museum and in schools and the teachers' centre. We have taught training days in the museum for both Secondary and Primary PGCE students, from the Department of Educational Studies and Oxford Brookes University, and look forward to continuing with these collaborations.

Families

The 'Family Friendly' Sunday afternoons continue to be well attended and are firmly established in our public profile. As in previous years, the backpack activities are changed twice a year; in October we introduced a pirate backpack (complete with hat-making challenge), and in May this was replaced by an animal backpack. Both have been very popular and we remain indebted to our committed team of volunteers for staffing the afternoons.

The October half term activity was 'A Bug's Life'. Over 1,000 children attended to interact with a wide range of entomological attractions including Dr McGavin presenting a lively talk dressed in full costume as a dung beetle!

In February we once again joined with the Pitt Rivers Museum for an 'Egyptian Extravaganza', which saw both museums packed with over 2,000 children over the four afternoons.

The summer half term activity was 'Travelling back in Time' where we ran a range of activities looking at the history of life on earth, including trials of new fossil timeline packs, and demonstrating and encouraging access to the *Learning Zone* web pages. The summer holiday activities in July were themed around 'Funny Feet', with a well-pitched talk by Chris Jarvis and access to an amazing selection of museum specimens as well as the opportunity for children to make their own Blue-footed Booby feet.

In addition to these longer events we have run a range of other family days from a National Insect Week event to an under sevens' Dinosaur Day (with the author Ian Whybrow), as well as our usual holiday trails.

For all of these events we have been fortunate in being able to use volunteers (both undergraduates and staff from within the University) to help run activities. Their input has allowed us to increase the scale of our activities as we spread out over the excellent space in the museum court. Over the year we have used 82 volunteers who have given 594 hours to the education programme at the Museum.

In February Rachel Robinson co-ordinated 'Wow! How?'; a very popular family science day with a wide range of hands-on activities devised and run entirely by volunteers (mostly undergraduates and post graduates from the science area).

Outreach and Community Groups

During the year we have run outreach sessions in both primary and secondary schools. The largest outreach programme to schools took place in Autumn 2003 when we had a targeted programme for secondary schools. This was run jointly with the Botanic Garden and involved input from entomological staff as accompanying experts. Oliver Brown delivered a very well received programme to over 1,500 students from a wide range of schools in Oxfordshire and surrounding counties.

As usual we participated in Oxfordshire Artweeks with Korky Paul's 'Rascally Reptile' drawing workshops, as well as hosting an exhibition of Korky's illustrations and the Artweeks debate evening. The education department was also involved in the Oxford Literary Festival as part of a story telling and creative writing project.

In January we ran a targeted 'Museum Magic' day for a 'Sure Start' group from Banbury who later returned to visit for the half term activity. Special sessions were also run for a father's group and Donnington Doorstep Community centre in East Oxford. We continued our association with 'Open Door' and ran 3 courses for adults with Learning Disabilities on insects and dinosaurs.

The theme for the Cowley Road Carnival in June was water. Together with the other University museums and collections, we ran a very popular children's craft activity area making sparkly fish, crocodile hats, octopus mobiles and waterlilies.

Staffing
Oliver Brown left in December to return to Australia to start his Ph.D. We were fortunate to be able replace him in January with the former Head of Biology at Gosford Hill School, Sarah Lloyd.

Rachel Robinson left her post of University Collections Outreach Officer in June to become Director of the Arts partnership Aliss in Shrewsbury.

Funding for education posts continues to be an issue. As part of the SE regional Hub we work increasingly closely with the other Oxford University Museums, as well as other museums in the Hub. Hub funding contributes to our education staffing. We are in the process of recruiting an art education officer funded by our Hub to develop resources for secondary schools in all four University museums.

Public Education and Outreach

Dr McGavin gave an illustrated talk and bug hunt for members of the public organised by Oxfordshire City Council Parks and Open Spaces and also gave lectures to members of the Women's Institute, the University Pensioners Club, the Oxford University Society Oxford Branch, and the Drayton Wives. Dr McGavin hosted tours of the museum, members of the Librarians Group, Oxford Women's Medical Group and children from the Wolvercote Watch Group.

Dr McGavin organised 'Bug Quest 2' with Wendy Fuggles from Public Relations, with invaluable IT support from Bethia Thomas.

Dr McGavin visited 8 schools in Oxfordshire who were taking part in Bug Quest 2, and gave illustrated talks and insect handling sessions for more than 1000 children, some of whom came to the closing event and prize giving in the Museum's lecture theatre. Dr McGavin was invited to the Glasgow Science Centre where he gave two days of public lectures entitled 'Bug World' in the guise of Dr Dung to coincide with the opening of the Bugs IMax film. Dr Dung also made an appearance as the Family Science weekend held in the Museum.

Dr McGavin gave the opening talk at the Abingdon Primary Schools Science Fair. He also attended the Abingdon School Careers Convention where he represented the biological sciences. Dr McGavin was a member of the jury at the 4th *International Film Festival of Insects* (FIFI).

Mr Mann ran and insect day during the Oxford Water Festival at Hinskey Heights Nature Trail
and ran a bug day for children for the RSPB in Wales.

Dr Ismay assisted with an Acalyptrate Diptera workshop at Preston Montford Field Centre organised by the Dipterists Forum, ran a children's day at Swaines Green, Essex and advised on management of the site by Countrycare, Epping Forest District Council.

Dr Kathirithamby gave was interviewed on her research on Stresiptera for the Science Show (Canadian Broadcasting Cooperation) and her work on strepsipterans and fire ants was extensively covered by numerous press releases in the international media.

Dr Siveter, together with others of his Oxford-based research group studying the soft-bodied fossils from the Herefordshire (Silurian) Konservat-Lagerstätte, gave talks on this topic to Hereford Sixth Form College, the Stamford, Warwick, Shropshire, and Liverpool geological societies, and to a public 'Paleofest' in the Burpee Museum of Natural History, Rockford, Illinois. One of the papers from this research work, published in *Science*, gained global media publicity. It described an exceptionally preserved 425 million years old ostracode crustacean, the morphology of which is so similar to some living forms that it can be placed in an extant family, thus proving that this present-day ubiquitous arthropod group also existed in Palaeozoic times. The fossil also preserves the earliest (male) copulatory apparatus in the fossil record and, noted by the Public Orator at Encaenia, this particular group of fossils apparently shows "an impressive record of consistent satisfaction". The research featured in eight radio interviews including BBC Radio 4, the World Service, and American, Columbian, Australian and Finnish radio; ten UK newspapers including *The Times*, *Guardian* and *Independent*, and T*he Sun* (headlined: 'The old Todger'); some 55 newspapers and websites in North America, including CBS and ABC news, and T*he New York Times* (front page); and also outlets in 21 other countries, ranging from the *Hindustan Times* and *China Daily* to *Le Figaro*, *Libération*, and *Der Spiegel*.

Dr Waters took part as an invited lecturer in two week-long international workshops for graduate students funded by the Italian government under the auspices of *International Seminars in Petrology* (ISPET), on *Microstructural analysis of Metamorphic Rocks* (Venice, Italy, October 2003), and on *High Temperature Metamorphism and Crustal Melting* (Granada, Spain, March 2004).

Miss Price continued as a member of the British Geological Survey Collections Advisory Committee, attending meetings in Keyworth. She gave a talk on Corsi and other marbles to the Brighton and Hove Geological Society in January. Mineralogy staff hosted visits by parties averaging 20-25 people from the Oxford Mineral and Lapidary Club, the Midlands Branch of the Russell Society, the Ravensbourne Rockwatch Group, the National Trust (Farnborough Hall), and the Mineralogy Department of the Natural History Museum.

Dr Kemp gave a lecture at the St John's Research Centre on the interpretation of fossil evidence and was invited by the University College London to lecture on the same subject. He headed the organising committee of the 51st meeting of the *Symposium on Vertebrate Palaeontology and Comparative Anatomy* in Oxford where he also gave a talk on the origin of endothermy.

Mrs Nowak-Kemp gave a talk to the Friends of Pitt Rivers Museum about the history of the concept of race in Europe and North America and in June she talked to the Oxford University Museums and Collections History group about the history of anatomy and medicine in Oxford University. She gave numerous guided tours of the Museum and Zoological Collections to the students of Oxford Brookes University, representatives of the Musée l'Homme and to groups of general public. She also gave a tour of the Museum to the first year students of Biological Sciences.

Shop Report

Till sales reached £111,548 this year, 2.83% up on the previous financial year. Weekend sales contributed £38,759, only slightly higher than last year. Sales were down in December and April, possibly due to the decline in visitor numbers during these months. This summer was very busy, June and July together took nearly £22,000, £3,000 up on last summer.
Aztec Gold, the new till system, was installed in April 2004 and made stock-taking a lot quicker and allowed the easy introduction of a bar-code scanner.

Miss Jane Maskell took over as Supervisor from Mrs Margaret Williamson, who retired on 31 July 2003, is missed by the shop staff, and thanked for all her excellent work. With a background in Art History and Museum Studies, Ms Odette Christie has taken on the role of Assistant Shop Supervisor. She has a keen eye for photography and retail display and her drawing skills have helped bring to fruition many of the bespoke product ideas from the previous year, including a range of children's T-shirts and a new museum tie.

New postcards will soon be printed, and all those involved are thanked for their input in photography, proof reading, and design. The two gift wrap designs, butterflies and bugs, were printed in time for Christmas and are still selling very well.

Mr James Currie, Miss Jessica Donaldson and Mr Trevor Hambidge continue to help at weekends and during the week. Ms Giusi Morretta left the shop in April and is thanked for all her help over the years. Thanks, too, to all on the Sales Committee for their help and encouragement.

Information Technology

General IT activities have continued steadily throughout the year. Nearly all Museum staff now has flat-screen monitors and pcs running Microsoft XP. IT staff protect the Museum's computers from viruses by means of a central installation of *Sophos* anti-virus software running on the Novell server. This software requires updating several times a month.

As part of the Designation Challenge Fund 2 project both the online databases and the new Children's Pages were evaluated by external consultants, Learning Unlimited. The evaluation was done in two parts - formative evaluation in June 2003, followed by summative evaluation in February 2004. Changes were made in response to the formative evaluation, including the renaming of the Children's Pages to the *Learning Zone*. The results of the summative evaluation were excellent, the first key finding being that "teachers were overwhelmingly positive about the site".

In December 2003 a bid to the Designation Challenge Fund was submitted for another two years funding (March 2004 to March 2006) to continue to develop and extend the Museum's online educational presence. The bid was successful, and the intention is to expand the L*earning Zone* to include material for students at Key Stages 3 and 4. By the end of March 2006 the Museum's website will include extensive learning material linking the collections to the science national curriculum for pupils from

Early Years up to GCSE level. The DCF3 grant provides funding for Ms Thomas to continue work on the *Learning Zone* web pages, for Dr Painter to continue her IT support, and for Ms Phibbs to continue to manage the DCF project.

Substantial sections on mineralogy, petrology and zoology have been added to the *Learning Zone*. These include 'The Living Animal', 'Extinct and Endangered', 'How we use Minerals' and the much-requested 'Rock Cycle'.

The Museum ran a second very successful 'Bug Quest' project with over 60 Oxfordshire primary schools participating. Ms Thomas played a vital role in the project, summarising, converting and presenting the data from the individual schools online.

Several outreach activities have been undertaken by DCF staff over the last year. In September 2003 Ms Thomas attended a meeting of the Earth Science Teaching Association held at Manchester University. The meeting provided opportunities to promote the *Learning Zone*, and to gain a better understanding of teachers' needs in developing earth science learning resources. This was followed by a visit to a teachers' inset evening at Matthew Arnold School in February. Ms Phibbs and Ms Thomas went to St Barnabas Primary School during Science Week in June to introduce Year 5 and Year 6 pupils to the *Learning Zone*. They also showcased online learning material during the summer half-term activities at the Museum. Ms Thomas participated in a 'Disseminating Skills' workshop that was run jointly with the Pitt Rivers Museum.

Ms Phibbs gave a presentation of the Learning Zone at an E-Learning conference in London. Marketing of the Learning Zone has also included sending a postcard advertising the Learning Zone to every secondary school in the country.

IT staff worked alongside Education staff in presenting opportunities the Museum provides for science teacher trainees. One session took place in January 2004 with 39 interns from the Oxford University Department of Continuing Education, and another took place in May 2004 with students from Oxford Brookes University.

March 2004 saw the end of the DCF2 project. Geological databases holding information about all the Museum's registered specimens from the Cambrian to the Cretaceous are now on line. Several hundred images of specimens have also been added to the on line database of geological type specimens.

In Geology André Ashington completed the data entry for the Cretaceous collections, following checking of all entries by Professor Kennedy. He also updated all databases compiled in the last few years, bringing them to the same standards of completeness and consistency as in those produced more recently. DCF funding for Mr Ashington finished at the end of March 2004, but internal funding is being used to retain his services for a further 9 months, to work on Cenozoic collections.

Menarka Rambukwella, a zoology student, has contributed some excellent material on a voluntary basis for the Extinct and Endangered section of the *Learning Zone*.

Part II. Reports from the Collections, Libraries, Environmental Archaeology Unit, Ancient Biomolecules Centre and Simonyi Professor for the Understanding of Science

The Hope Entomological Collections

We are very sad to report the deaths of two entomologists associated with the Collections for many years; Dr (Major) Donald Baker, an Honorary Associate Curator and world authority on bees, and Dr Angus McRae, a specialist on saturniid moths. Their wit and wisdom will be missed.

Professor Simpson was the keynote speaker at a meeting on *Biological and Artificial Swarms* at the Institute for Pure and Applied Mathematics, University of California, Los Angeles and organiser and speaker at a meeting on *Advances in the Study of Collective Behaviour* in Oxford. He was also a symposium speaker and co-convener of the insect-plant relationships section at the I*nternational Congress of Entomology* held in Brisbane and organiser of the EU COST action workshop on *A Geometric Approach to Diet Optimisation in European Aquaculture* held in Oxford. To complete a very busy year for Professor Simpson, he was the plenary speaker at a meeting on *Multi-agent Systems – Swarms, Ecology and Society* at the Max-Planck Institute for the Physics of Complex Systems in Dresden.

Professor Simpson continued as Editor for *Advances in Insect Physiology*, Subject Editor for *Ecology*, Associate Editor for *Entomologia Experimentalis et Applicata* and member of the editorial boards of *Journal of Insect Physiology*, *Physiological Entomology*, *Chemoecology* and *Insect Science*.

Dr McGavin gave two lectures at the University of Derby to students studying ecological entomology and hosted them, with Mr Mann on a visit to Oxford. Dr McGavin also hosted a visit to the museum by students from the Department of Biology at the University of Birmingham and he and Mr Mann spoke to students from the Leicester Department of Museum Studies about curation and conservation of natural history collections. Dr McGavin ran a workshop on terrestrial invertebrates at the Royal Geographical Society and continued to serve as a member of the Curatorial Committee of the Linnaean Society. Dr McGavin was invited to serve as the external examiner for the Diploma Course in Field Biology at the University of Sussex.

Mr Mann gave a talk entitled 'Oxford Odonates: Off and On-line' at the British Dragonfly Society AGM at Lincoln University. Mr Mann continued to serve on the editorial panel for *The Coleoptersist*.

Mr Hogan became registered as an external postgraduate student with Oxford Brookes University and started his PhD project on the phylogeny and biogeography of ground beetles (Coleoptera: Carabidae).

Mr Mann and Mr Hogan were joint organisers and speakers at a training day entitled *Insect Collections Management* for members of the Natural Sciences Collections Association held at the Natural History Museum in London.

Mr O'Toole continued to serve on the ARKive (Wildscreen) Acquisitions Panel and the English Nature Rare Bumblebees Action Group. He continues as Science Director of the Oxford Bee Company.

Dr McGavin, Mr Mann and Mr Hogan taught practical and field course elements for the Biological Science Degree and MSc in Integrative Bioscience as well as acting as supervisors for a number of undergraduate and postgraduate research projects.

Dr Pont continued to serve on the editorial board of *Zoology in the Middle East*, *Fauna of Arabia* and *Studia Dipterologica*. He also continues a Secretary/Treasurer of the Council for International Congresses of Dipterology and as a Scientific Associate of the Natural History Museum in London and an Associate in Science at the B.P. Bishop Museum in Honolulu. Dr Pont has been invited to serve on the panel that judges nominees for the Thomas Say Award, a major award given annually by the Entomological Foundation of the Entomological Society of America.

Dr Pont attended the 25th annual one-day meeting of the British Simuliidae Group at the NHM in London and gave a talk on 'Black flies and their dipteran predators'. He also attended a Dipterists Seminar at National Museum of Wales in Cardiff, the 2004 meeting of the European Association of Forensic Entomologists at the NHM in London and the annual meeting of the Arbeitskreis Diptera, the German dipterists' group, held at Bielefeld where he was co-author of a talk on dipteran predators of black flies presented by Dr D. Werner.

Dr Ismay continued to serve on the editorial board of the *Entomologist's monthly Magazine*.

Mr O'Toole neared completion of the Hymenoptera Type catalogue. Much progress was made, especially in solving problems associated with the type series of various wasp families which were split between the OUMNH and NHM. This has brought hitherto unsuspected material to light in both museums.

Mr Mann and Liz Mellings completed a database catalogue of the Wollaston Atlantic Island Insect Collection. Mr Mann and Anne Courtenay completed a catalogue for the Fauna Hawiiensis. Both of these catalogues will go on-line in the next year.

Pest checking and remedial conservation of the entire Collection (~20,000 drawers) was completed by members of the staff and volunteers. This operation has taken 20 months and cost an estimated £25,000 in staff time and consumables.

Mr Ackland continued the identification of British Anthomyiidae amongst the unidentified material, and incorporation into the Reference and General collections (including staging and labelling of remaining Collin-Verrall duplicate Anthomyiidae).

Mr Henshaw has continued to curate the Agromyzidae collections and is preparing a World List of the Agromyzidae.

Dr Pont continued recurating the Palaearctic Diptera Collection (Verrall-Collin Palaearctic Diptera) and cataloguing the types therein.
Dr Ismay incorporated Diptera, including Lonchaeidae identified by Dr I. Macgowan and Mycetophilidae by P.J. Chandler and a large collection of slides of Ceratopogonidae collected during the survey of Burnham Beeches and identified by J. Boorman into the collections,

Geological Collections

Professor Kennedy was appointed Director of the OUMNH, after 27 years as Curator of Geological Collections. During this time, enormous strides were made in all aspects of the curation of the palaeontological and rock collections, and he passes on a very significant legacy on which to build in the 21st century.

Dr Siveter took on the role of Acting Curator, and at the same time was awarded Special Paid Leave for one term to allow him to complete his contribution to a book entitled *The Cambrian Fossils of Chengjiang, China: The flowering of early animal life*. This publication formed part of a Royal Society funded project, under which he also visited the University of Yunnan (Kunming) for two weeks. Various research presentations on the soft-bodied animals from the Herefordshire (Silurian) Konservat-Lagerstätte were given by the Oxford/Leicester/Yale team working on this exceptional preservation horizon. These included contributions to the Annual Conference of the Palaeontological Association, University of Leicester (two papers); the European Palaeontological Association meeting on Exceptional Preservation, Teruel, Spain; the universities of Durham, Oxford, London, Liverpool and Manchester; the Ludlow Research Group Meeting (three presentations); the Geological Society of America Annual Conference, Seattle; and the universities of Kansas and Harvard. A display of the computer modelling of the Herefordshire fauna was presented in the Museum during the visit of the Arts and Humanities Research Board. Dr Siveter organised, in the Museum, the annual meeting of the Ludlow Research Group. His Marshall scholar research student Talia Karim successfully defended her M.Phil. thesis on Upper Ordovician trilobites from Iran. He also gave lectures in the Department of Earth Sciences and acted as an Assessor for Schools examinations.

Dr Siveter continued to manage the Oxford Digital Library project, which will put a very substantial body of early geological literature, much of it with an Oxford connection, online.

Ms Brecknell (Librarian) has been heavily involved in this project. Delays with the throughput of material at the University's central imaging facility have continued, but it is anticipated that all imaging will be complete by the end of 2004.

Mr Paul Jeffery completed his first year's service at the University Museum in May 2004, and has seen the learning curve begin to ease off! He researched, identified, databased and curated the section's holdings of Wealden and Purbeck fossils – a continuing task. With the assistance of Miss Hay, he provided specimens for display to Lancaster City Museum for their celebration of Richard Owen's bicentenary, and to

Banbury Museum for their exhibition on local geology, including the famous dinosaur trackways at Ardley. He accepted several large donations of Jurassic ammonites from important workers in the field, including around a thousand specimens of Oxfordian ammonites from Staffin, Isle of Skye, from John Wright (Royal Holloway College, University of London). He co-ordinated the acquisition and began the integration of the Donald Baden-Powell archive and library, concerning the Quaternary stratigraphy and faunas on which Mr Baden-Powell most famously worked. He provided specimens, advice and on-site support for two different BBC natural history productions, and one for *National Geographic*, and provided support and expertise to a number of in-house projects, including the redisplay of the Zoological Collections, and the Primates and the History of Life displays. He supervised one work experience student from Banbury School, and one part-time volunteer. He continued his research on Cenozoic invertebrates, and has remained as acting editor of *Tertiary Research* during its transition to a new format.

Ms Juliet Hay, with assistance from Eliza Howlett, Joy Irving and Bethia Thomas, organised the annual *Symposium of Palaeontological Preparators and Conservators*. This was very well attended (35-40 delegates) and deemed a great success. She spent two days in the Museum with Naomi Jordan from Steeple Claydon, Buckingham, during which she gave advice on fieldwork and demonstrated various preparation and conservation techniques prior to a Duke of Edinburgh Award field trip by Naomi to the south coast. She also made and painted two casts of the *Megalosaurus* jaw for Banbury Museum and Lancaster Museum, and continued her work on the conservation and redisplay of *Temnodontosaurus*.

Ms Eliza Howlett refined the cataloguing of all casts of type, figured and cited material in the Cretaceous collections (approximately 2,000 specimens) and prepared 300 images of type and figured specimens to be added to the Geotypes database. She ran a fossil-handling session for the half-term activity *Looking back in time*, and attended two meetings of the Oxford University Collections and Museums History Group. Together with Ms Hay and André Ashington, she supervised two work experience students; one from Wheatley Park School, the other from St Augustine's Catholic College, Trowbridge.

Mrs Joy Irving has divided her time in Geological Collections between the maintenance of specimens treated for pyrite decay, and the registration, conservation and research on the localities of foreign, mainly European, Carboniferous plant specimens. This has included the re-registration of specimens where wrong data had been previously ascribed, and the determination of localities whose names have since changed, by searches of foreign historical texts, geological maps, and by appreciating the fluidity in the position of European boundaries in the late 18th to early 19th centuries.

Mr Philip Powell has continued, as an Honorary Associate Curator, to curate parts of the Mesozoic fossil collections, and has been working on a book on the geology of Oxfordshire. He continued to lead field excursions for the Oxford Geology Group, and consulting work on building stones.

Mr Paul Clasby continued to work on Tertiary collections, listing the contents of every drawer so that this material can eventually be rearranged in a more systematic fashion.

Mr Nick Francis (Tubney, Oxfordshire) began voluntary work, helping to curate the Palaeozoic collections.

Mineralogical Collections

Dr David Waters, University Lecturer in Metamorphic Petrology in the Earth Sciences Department, took up office as Curator of the Mineralogical and Petrological Collections on 1 August 2003. Two of his objectives are to develop opportunities for deploying parts of the petrological collections in support of university teaching, and to help extend the Museum's web-based resources (educational materials and images) to cover a wider range of academic levels. Having assembled and refurbished existing optical and photographic equipment for taking photomicrographs of geological and mineralogical thin sections, in both conventional photographic and digital formats, he started a programme of photographing typical rocks and minerals selected from material from Museum and Departmental collections, to build up a digital archive for use in teaching and outreach.

In a related vein, he continued work with the ACDT (Academic Computing Team of the Learning Technologies Group, OU Computing Services) on the Oxford Earth Science Image Store (OESIS), a web-based database of digital images for teaching and research in all aspects of Earth Science. Work continued this year on testing both Schools and University interfaces, writing introductory text and instructions for use. In preparation for populating the database, he has been organising and documenting own digital image collections. The database is to be handed over later in 2004.

Dr Waters took part as an invited lecturer in two week-long international workshops for graduate students funded by the Italian government under the auspices of *International Seminars in Petrology* (ISPET), on *Microstructural analysis of Metamorphic Rocks* (Venice, Italy, October 2003), and on *High Temperature Metamorphism and Crustal Melting* (Granada, Spain, March 2004).

Miss Price, continues to serve on the British Geological Survey Collections Advisory Committee.

A substantial part of her time in the past year has been contracted out to Dorling Kindersley. She worked with the publisher's designers and photographers obtaining images of a large number of minerals and rocks for the first of a new series of major reference books *Rock and Gem*, authored by Ron Bonewitz. She has also been commissioned to write *Rocks and Minerals,* part of the new Dorling Kindersley Pocket Nature Series, with Mr Walsh contributing the section on rocks.

Good progress has been made with new displays. Miss Price worked with Mr Walsh on the design, selection of specimens, labelling, documentation and mounting of five new mineralogy displays in the centre Court. Production of backdrops was by Real Studios and mounting was carried out by Dauphin. The *Finding out about minerals*,

Ore minerals, and *Industrial minerals* cases are essentially the same in content and layout as displays dismantled in recent years. Two additional cases focus on British minerals, *A heritage preserved* shows minerals from Britain's now defunct metal mines, while *A heritage revealed* shows minerals from working mines and quarries across Britain, some still yielding minerals new to the science. These cases have content of particular interest to amateur mineralogists as well as the public in general. Nine fine large specimens of minerals, rocks and fossils have been placed on open display between the mineral and earth processes cases. Dr Waters has been planning, with Mr Walsh, the design and content of the new Earth Materials display *The rock cycle*, which will occupy table cases around the southern perimeter of the Court. A new case for the display of fluorescent minerals has been constructed by Mr Richey and design of the contents is underway.

Miss Price continued the sorting of unregistered mineral specimens and with Mrs Irving has continued cataloguing new mineral acccessions. She attended the Oxford Mineral and Gem Show in April, but did not purchase specimens. Further work has been done with Natural History Museum staff researching the falsification of scientific data and tampering with specimens carried out by Arthur Kingsbury, a former research assistant in the University Museum. Specimens in the Oxford Collection that had been the subject of falsification were of interest to many on the Natural History Museum's Mineralogical Department staff annual outing here in June. Other important accessions during the year include a number of goniometers, including a very fine research goniometer formerly used in the Museum by Dr Mary Porter, presented by Mr Peter Embrey, and a substantial number of historic microscopes, goniometers and other intruments and accessories transferred from Chemical Crystallography via Dr Davis Watkin, prior to the removal of that department to the new Chemistry building.

Mrs Irving attended the NOOX3 conference/workshop at the British Library/Natural History Museum in November to gain an appreciation of the latest research and practical methods in the use of oxygen-free storage. Equipment has now been purchased for this purpose, and the maintenance of and collection of data on treated pyritized specimens is ongoing. She has tracked down additional specimens from the fine Richard Simmons collection, identifying them by characteristic labels. A project involving the digital photography of old number labels on specimens belonging to known mineral dealers, etc., has gradually evolved into cross-referencing these to old labels, invoices and lists in the Muller archives and has so far uncovered two types of specimen number labels belonging to the Cornish dealer Richard Talling, one for F.H. Butler, one for Muller himself, and is ongoing.

Miss Price has continued to work on the Mineral Collections Database, adding and correcting data and adding information on the history of specimens to fields accessible on the worldwide web. Mr Seymour James has worked on a voluntary basis checking geographical data, and building a list of web sites and other resources for the checking of mineral localities worldwide as part of a research project with Miss Price.

Professor Vincent and Miss Phipps have now catalogued a large part of the Mineral Collections' archives. This includes the sorting and cataloguing of an important archive of correspondence between Dr Hugo Muller and a large number of mineral

dealers, much of it written in German. They have also continued the transfer of information about original labels to the mineral database.

Mrs Pelham moved out of the lower Abraham Room, returning this much-needed space for cataloguing work, where Mr Ted Smith, working in a voluntary capacity, has cleaned, re-trayed, and transcribed data for the remaining specimens in the Charles Daubeny collection and Buckland's rocks of his journey of 1816, working under the direction of Mr Walsh.

A large collection of rocks from the Andes collected by Dr Simon Lamb of the Earth Sciences Department and his associate researchers were selected and curated by Dr Leonore Hoke, Dr Lamb and Mrs Irving, and transferred from the Earth Sciences Banbury Road annexe to Museum premises.

Web pages introducing the Corsi Collection and written by Miss Price were put on line in June. She attended a web development course at the University Computing Centre to enable her to develop the Corsi website to current access standards. In September she identified the 165 decorative stones in a 19th century inlaid table-top for the National Trust, enabling a guide to be prepared for visitors to the property, Farnborough Hall in North Oxfordshire. She has answered other enquiries relating to the Corsi collection in particular and decorative stones in general. In September, Mrs Cooke attended the 7th International Conference of ASMOSIA (Association for the Study of Marble and Other Stones in Antiquity) on the Isle of Thasos, Greece. She gave a paper (co-authored by Ian Thomas of the National Stone Centre) on 'Faustino Corsi and the coloured marbles of Derbyshire', and visited ancient and modern quarries working Thasian marble as part of the conference programme.

Once again we would like to thank all the volunteers who have assisted our work during the course of the year.

Zoological Collections

The Curator Dr Kemp completed his monograph, *The origin and evolution of mammals,* for O.U.P. He presented research papers at the SVPCA in Oxford, the Brisbane meeting of CAVEPS, and St John's College's Research centre. Three visitors came to study and discuss his Zambian therapsid collection during the year.

He wrote the text for the 10 new Primate, and 12 new Lower Vertebrate display cases, and gave 41 University lectures and associated practicals in four of the courses in Biological Sciences, supervised several Course Assignments, was an Assessor in the Final Honour School, and continued with his College responsibilities as Tutor, Senior Dean, and Keeper of Bagley Wood.

In September the Museum played host to the 51st *Symposium on Vertebrate Palaeontology and Comparative Anatomy*; the organising committee consisted of Dr Kemp, Małgosia Nowak-Kemp, Bethia Thomas, Juliet Hay, and Dr Paul Barrett, and finished with a field trip to Oxfordshire Jurassic localities led by Philip Powell.

In the course of the year, the Assistant Curator, Dr De Grave completed his probationary period and his appointment was confirmed.

Dr De Grave considerably enriched the Zoological Collections holdings of marine invertebrates during fieldwork in Tobago, as a staff member participant of the University of Hull (Scarborough campus) annual tropical field trip, and by participation in a collecting trip off northern Norway, at the invitation of the Tromsø Museum and in collaboration with Professor W. Vader and Drs d'Udekem d'Acoz. Together these added more than 150 species hitherto unrepresented in the Zoological Collections.

He continued the curation and databasing of the Mollusc Collections, completing several families and commencing work on our considerable helicid holdings. His work on identification and accession of the recently acquired marine material was also continued. Two Biology Honour students' projects on caridean shrimps of Honduras were supervised by Dr De Grave, leading, incidentally, to the rediscovery of a species not seen since 1883, and he also supervised three Course Assignments.

Dr De Grave located and purchased a series of casts for the new Lower Vertebrate displays.
Mrs Nowak-Kemp continued her archival research and curation of the human material, collaborating with colleagues in the other Oxford museums and the Natural History Museum in London. She gave talks to the Oxford University Museums group, and to the Friends of the Pitt Rivers Museum on the history of these collections, and attended a one-day seminar on Human Remains organised by the Museums Association.

She also continued the conservation of the Vertebrate Spirit Collection, with the help of invaluable volunteer student labour, and was responsible for liaising with the ancient DNA lab, and responding to the ever-increasing number of requests we receive for museum taxonomic samples for DNA analysis.

She collated and recorded all the specimens for the new Primate and Lower Vertebrate displays, and organised the cleaning and restoration of those requiring it, using volunteer labour by Oxford Brooks University anthropology students.

As part of the Museum's teaching activities, Mrs Nowak-Kemp was responsible for organising four practical classes for Oxford Brookes University Anthropology and Primate Conservation Course, three for Oxford University's Final Honour School of Human Sciences, and two on Zooarchaeology in the Final Honour School of Archaeology and Anthropology.

Miss Conyers has made considerable progress in the curation and databasing of the mollusc holdings, this year concentrating on the historical Gardiner and Wollaston collections. She also devoted a substantial amount of time to the curation and reorganisation of the invertebrate spirit holdings, and the accessioning of recently acquired invertebrates. She attended a two week Introductory Marine Biology course in Millport, as part of an active programme of training in invertebrate systematics and conservation.

Mr John Davies continued with the curation of terrestrial land snails.

The Hope and Arkell Libraries

The retrospective cataloguing on to OLIS continued with Geological and Zoological Collections' holdings.

The review and reboxing (into archival storage boxes) of the entomology reprint and pamphlet collection continued. Any manuscripts were documented and incorporated into the archives. A small amount of out-of-scope material was discarded, or put aside to donate to other institutions, but normally only if it was readily available in the core journals, or completely devoid of entomological interest. The exceptions to this were papers on bee-keeping which were donated to IBRA.

A set of the journal publications of the late Professor M.R. House was received and added to the House Collection in the Palaeozoic Room. Various books and journals were given to the Museum by the Pitt Rivers Museum during a major overhaul of the Balfour Library. Many of the donations have an association with the geologist Donald Baden Powell. They have not yet been incorporated into the Library.

Some duplicate entomology books were sold, via an advertisement in *Bulletin of the Amateur Entomologists' Society*, raising £441.
The Museum's project for the Andrew Mellon Foundation-funded Oxford Digital Library (ODL), First Round, *(Key 17th to early 19th century geological literature related to the collections of the Oxford University Museum of Natural History and the early development of the English School of Geology)* continued, with about 50% of items having been imaged, checked against the metadata, and 'completed' ready for an end-user system. The checking was done by the Librarian and is sporadic, but time-consuming work, when new batches have been loaded. Several books were damaged during the imaging process. This is inevitable with fragile bindings. The repairs were carried out by Mr Rennison Hall (see the Conservator's report below). At the beginning of July, Mr André Ashington commenced entering the metadata for the ODL Round Two project: *Key 19th century entomological literature related to the Hope Entomological Collections of the Oxford University Museum of Natural History, and the early development of entomology as an academic subject, with special reference to J.O Westwood, 1805-1893.*

A fluctuating proportion of the Librarian's time was occupied in working with library users: discussing their projects and their needs, explaining the layout of the library and the use of the catalogues, assisting with finding bibliographic information, fetching books and manuscripts, and occasionally borrowing materials, from the Radcliffe Science Library and elsewhere. The day-to-day management of the library involved wide-ranging tasks and occupied a variable proportion of each week.

The Librarian continued her membership the Entomology Libraries and Information Network (ELIN) and the History of Geology Group (HOGG). She continued chairing the Cataloguing of Electronic Resources Working Group (CERWG), renamed Electronic Resources Special Interest Group (ERSIG), which meets each term. Occasional additional meetings are organized too, which take the form of expositions of particular projects (e.g. *Forced Migration Online*, at Refugee Studies, on 16 June) or of related matters, such as particular metadata schemes.

The Librarian attended this year's Oxford Libraries' Staff Conference, entitled: *Special Collections: the next 400 years*, at St Catherine's College, on 18 March. She attended *SHERPA: securing a hybrid environment for research preservation and access*, on 11 March. This described a joint JISC/CURL project for studying new models of scholarly communication and publishing: in particular, the self-archiving of e-prints for open access in institutional, digital repositories. A seminar attended on the 4 November on the SPARC project covered similar ground. A short seminar on Elsevier's SCOPUS, an A & I product, was attended on 31 October and one on Digital Project Management on 2 February. The presentation *Sustaining excellence* was attended on 21 June. She also attended meetings of the History of University Collections Group, on 9 December and 3 March.

The Librarian hosted a lunch-time meeting of the Science Librarians' Club on 25 March. She gave a short historical and architectural tour of the Museum and Hope Library, and put out an exhibition in the Archive Room. A behind-the-scenes glimpse of curatorial and research work was given by Dr George McGavin and Dr Derek Siveter, which was very enthusiastically received. The Librarian gratefully acknowledges their contribution to the success of this event.

The Librarian put out a display of publications and manuscripts by William Smith in the Archive Room, on 5 December, for Dr Ros Rickaby (Department of Earth Sciences) and her students.

Mr Rennison Hall reports that he continued with the conservation of paper items from the Museum's archives, mainly the large lecture diagrams of William Buckland. He repaired damaged books from time to time, mainly those damaged by the ODL digitisation process.

He continued to provide a photographic service to all the Collections, both digital and film and produced images for gift-wrap paper and postcards for sale in the Museum Shop. He framed pictures as required by the Collections, and has hung various temporary exhibitions of pictures in the upper gallery.

He was consulted on conservation issues by all the Collections, and carried out COSHH assessments of the chemicals used in the Conservation Studio and he is the Assistant Chemical Officer for the Museum. He continued with the environmental monitoring both in the Museum and at the Museum's remote stores (Nuneham Courtenay and Engineering Sciences' basement).

In May 2004, he attended a Conservation Conference held at the Ashmolean Museum.

Mrs Alton continued with the archiving of the Dorothy Hodgkins papers under the auspices of the National Cataloguing Unit for the Archives of Contemporary Scientists (NCAUCS), University of Bath.

Environmental Archaeology Unit

Undergraduates were again taken to excavate at Pompeii in September. The project, with the Deutsches Archäologisches Institut, Berlin, was successfully completed, and a full

plan obtained of the peristyle garden of a house near the Vesuvian Gate of the town. The detailed analysis of the samples taken for biological remains will begin at the Unit next year. The geological deposits of volcanic ash beneath the archaeological layers were also sampled, and possibly have some research potential because the prehistoric eruptive sequence of Vesuvius is poorly known from Pompeii.

English Heritage-funded work has mostly been concerned with writing up projects for publication. Reports have been completed for the Cotswold Water Park sites and the Iron Age to Roman deposits at Yarnton Pit, all gravel quarries in the Upper Thames Valley. Lectures and demonstrations were given for two English Heritage Archaeological Training Days.

First year practical classes and third year archaeological science option classes for the Archaeology and Anthropology degree were given in the Museum, making use of the collections. Practical classes were also given for the new M.Stud. in Landscape Archaeology. Nine students gained additional experience in environmental archaeology by working as assistants for a total of 40 weeks in the Unit.

Ancient Biomolecules Centre

Although the researchers of the Ancient Biomolecules Centre (ABC) have largely moved from the Museum into a brand-new purpose-built facility, the Museum lab is still in use particularly to tackle the question of how and where were pigs domesticated. This work has involved the analysis of hundreds of specimens of domesticated and wild pigs, mostly sampled from museum collections, including the OUNHM.
Apart from continuing work with various animal phylogenies, the ABC is also pioneering studies that look at the ancient DNA in soil. From as little as half a gram of sediment it is now possible to reconstruct the biological environment hundreds of thousands of years ago. Recently Dr Eske Willerslev and James Haile spent several weeks in Siberia, braving mosquitos, wasps, Russians and Brown Bears, to collect a series of permafrost core samples which have the potential to throw light on the environment of the Bering Land Bridge, as well as answer other similarly pressing questions.

Simonyi Professor for the Understanding of Science

The Simonyi Professorship has had an extensively busy and high profile year with its pinnacle being the pending publication of Professor Richard Dawkins' magnum opus *The Ancestor's Tale* with the help of Dr Hor Yan Wong, who will be leaving shortly to take up a lecturership at the University of Leeds. Professor Dawkins has been extremely busy with giving numerous television, radio and newspaper interviews, published articles in most of the national broadsheet newspapers, continued his column in *Free Inquiry Magazine* and has been invited to lecture all over the world. Some of the lectures he gave in 2004 include the Anniversary Lecture at the University of York, the Tanner Lectures on Human Values at Harvard University and the Niko Tinbergen Memorial Lecture at the University of Leiden. In addition to the writing of his new book, Professor Dawkins also undertook an international book tour

to promote *A Devil's Chaplain,* his newly published book of collected essays travelling to Italy, Holland, and the United States of America. Professor Dawkins was also a judge for the Grierson Award for Science and the BAFTA awards for Science Education, and he has been made the Chairman of the Royal Society's Faraday Award Committee. The 5th annual Simonyi Lecture was a sold out event at the Oxford Playhouse and was given by the Astronomer Royal, Sir Martin Rees.

Part III. Appendices

Appendix 1: Visitors of the Oxford University Museum of Natural History at 31 July 2004

The Vice-Chancellor C.R. Lucas, MA, D.Phil.

Professor A.S. Goudie, MA, Ph.D. D.Sc. (Chairman)

The Assessor D.J. Walker, M.Sc., D.Phil.

The Proctors J.F. Wheater, MA, D.Phil; The Revd. J.D. Maltby, MA, Ph.D.

Professor M.G. Bassett, B.Sc., Ph.D., D.Sc., FGS

Professor L.R.M. Cocks, OBE, TD, MA, D.Phil., D.Sc., FGS

Professor P.C. England, MA, D.Phil., FRS

Professor P.H. Harvey, MA, D.Phil., D.Sc., FRS

Professor P.W.H. Holland, MA, Ph.D., D.Sc., FRS

Dr M. O'Hanlon, MA, Ph.D.

Dr G.P. Thomas, MA, Ph.D.

Mr B.R. Ward-Perkins, MA

Professor J.H. Woodhouse, MA, D.Phil., FRS

Professor W.J. Kennedy, MA, B.Sc., Ph.D., D.Sc., FGS (Secretary)

Dr T.S. Kemp, MA, Ph.D. (in attendance)

Professor S.J. Simpson, MA, B.Sc., Ph.D. (in attendance)

Dr D.J. Siveter, MA (status), B.Sc., Ph.D., FGS (in attendance)

Dr D.J. Waters, MA, D.Phil. (in attendance)

Appendix 2: Staff of the University Museum at 31 July 2004

Director: Professor W.J. Kennedy, MA, B.Sc., Ph.D., D.Sc., FGS
Administrator: Ms W. Shepherd, MA (status), B.Sc.
Assistant to the Director: Mr K.L. Walsh, MA, PGCE, FGS

Hope Entomological Collections

Curator: Professor S.J. Simpson, MA, B.Sc., Ph.D.
Assistant Curator: Dr G.C. McGavin, MA (status), B.Sc., D.I.C., Ph.D.

Geological Collections

Curator (Acting): Dr D.J. Siveter, MA (status), B.Sc., Ph.D., FGS
Assistant Curator: Mr P.A. Jeffery

Mineralogical Collections

Curator: Dr D.J. Waters, MA, D.Phil.
Assistant Curator: Miss M.T. Price, MA (status), B.Sc., M.Sc., AMA

Zoological Collections

Curator: Dr T.S. Kemp, MA, Ph.D.
Assistant Curator: Dr S. De Grave, B.Sc., M.Sc., Ph.D.

Information Technologists

Officer: Ms S. Phibbs, BA
Assistant: Dr R. Painter, BA, M.Sc., D.Phil.

Education Officers

Officer: Mrs J. Stott, BA, Cert.Ed.
Secondary School Officer: Ms S. Lloyd, B.Sc., PGCE
Primary School Officer: Mr C. Jarvis, BA, PGCE

Librarian

Ms S.M. Brecknell, BA, ALA

Environmental Archaeology Unit

Director: Dr M.A. Robinson, MA, Ph.D., FSA

Curatorial Officers

Mr D. Mann, B.Tec.; Mr C.A. O'Toole

Technical Support

Mr C. Burras; Miss L. Conyers, Ms A. Courtenay, MA, Ph.D.; Mr R. Hall, NDD, B.Tec.; Ms J. Hay, BA; Miss E.A. Howlett, BN; Mr J. Hogan, B.Sc.; Mrs E.J. Irving, BA, M.Sc.; Mr P. Johnson; Ms G. Moretta, Mrs M. Nowak-Kemp, B.Sc., M.Sc.; Mr W. Richey; Ms B. Thomas, B.Sc.

Central Services

Head Porter: Mr A. Archer

Deputy: Mr H. Thornton; Miss C. Coutinho, Mrs V. Howett

Administrator's Assistant and Secretary to the Director: Ms K.A. Andrews-Speed

Accounts Clerk: Mrs D. Pelham, BA, B.Tec.

Data Input Clerks: Mr A. Ashington

Shop Supervisor: Ms J. Maskell, BA

Assistant Shop Supervisors: Miss O. Christie, BA

Shop Assistants: Mr J. Currie, Miss J. Donaldson, Mr T. Hambidge

Cleaners: Mr C. Abinett, Mr G. Coates; Mrs M. Coutinho, Miss D. Hastings; Mrs S. Pearson

Honorary Associate Curators

Mr M. Ackland
Fr A.E. Bean, MA
Mr P.S. Clasby, BA
Mr J.B. Davies, MA, M.Sc.
Mr A. DiMauro, BA, MA
Mrs M. Green, D.Phys. Ed.
Mr D. Henshaw
Dr J.W. Ismay, B.Sc., Ph.D.
Mr I. Lansbury, M.Phil
Dr A.C. Pont, MA, D.Sc.
Mr H.P. Powell, MA

Honorary Research Associates

Dr P. Barrett, MA, Ph.D.
Dr J. Kathirithamby, B.Sc., Ph.D.
Dr M. O'Neill, B.Sc., Ph.D., C.En.
Mrs E.M.H. Cooke, MA
Dr C.A. Norris, MA, D.Phil.
Professor K.S. Thomson, MA, B.Sc., Ph.D.

Appendix 2: Other staff

Entomological Collections: We are most grateful to the following people who have volunteered their time to work in the Collections: Gavin Rogers, Dino McMahon, Zoe Simmons, Rebecca Jeffree, Alex Taylor, Phillipa Gillingham, Nilay Tuncer, Liz Aitken, Sonia Beslika and Sarah Beynon.
Volunteers: Once again we have a number of work experience school pupils and were pleased to host Nick Simpson, Alex Bradley, Robin Loveridge, Ralph Morgan, Nina Kearsey, Douglas Robertson and Hannah Rhodes.

Geological Collections: Voluntary and casual help: Nick Francis (Tubney, Oxfordshire), Dr Nina Morgan (Chadlington), Edward Coleman (Banbury School), Lesley Payne (St Augustine's Catholic College, Trowbridge) and Joshua Warwick-Smith (Wheatley Park School).

Mineralogical Collections: Mr Seymour James, Miss Nina Phipps, Mr Ted Smith, and Professor E.A. Vincent.

Zoological Collections: Volunteers: Robert Davies, Sarah Owen and Alba Sanchez (all from Oxford Brookes University); Rachel Hale (1st Zoology undergraduate).
Work Experience: Erin Dawkins (The School of St Helen and St Katherine); Christine Salmon (Matthew Arnold School)

Environmental Archaeology Unit: Lucy Cramp (St Hugh's), Seren Griffiths (Keble), Sarah Jack (Hertford), Sophie Kallin (St Hugh's), Emma Lightfoot (St Hugh's), Mari Lowe (St John's), Eugenie Reidy (Hertford), Amy Reynolds (Hertford), Darryl Wilkinson (Hertford).

Henry Wellcome Ancient Biomolecules Centre

Director: Professor A. Cooper, BSc, Ph.D.
Centre Manager: J. Hailes, BA
R. Barnett, B.Sc.; M. Bounce, B.Sc., Ph.D.; G. Larson, BA, M.St.; H. Weinstock, MA, Ph.D.

Simonyi Professor of the Public Understanding of Science

Professor R. Dawkins, MA, D.Sc., FRS, FRSI
Research Assistant: Dr H.Y. Wong, BA, D.Phil.
Personal Assistant: Mrs C. DeBlase-Ballstadt. BA

Appendix 3: Finance

General

The University's General Board made a recurrent grant totalling £537,431 for the Financial Year 1 August 2003 - 31 July 2004. In addition we received the third year's instalment of the AHRB funding of £323,067.

New Financial System, OSIRIS
Centrally the University replaced its finance system with OSIRIS, '**O**xford **S**trategic and **I**ntegrated **R**esource **I**nformation **S**ystem'. The system was installed with the intention of providing high quality financial and management information which had not been possible using the old 'Prophecy' system. The new system is designed to record financial information across all University departments, institutions, boards and committees, and was introduced on 5 April 2004. Staff within the Museum have been trained in the software.

Grants awarded and Donations received

Once again the Museum has been successful in bidding for additional external and internal funding. The University's Van Houten Fund awarded the Museum partnership funding of £20,000 for the second round of funding from DCMS (Department for Culture Media and Sport). Our bid for DCF 3 funding included an in-house partnership funding for the staff element and we were awarded £109,170 to continue the Digital Catalogue and Educational Pages. We received £3,785 to support conservation of the Recent Mollusc collections; £4,000 from the Dennis Curry Fun, and £5,500 from the Hulme University Fund to install the Primate displays.

A further major award was £228,700 from the SRIF (Strategic Research Infrastructure Fund), to rehouse at risk Entomological collections.

Travel and Research Grants

Entomological Collections

Professor Simpson was awarded £240,000 from the N.E.R.C. (2004-2007) to study the cost of immunity from a nutritional perspective with Dr Ken Wilson (University of Stirling) and £220,000 from the B.B.S.R.C (2004-2007) for work on foraging for multiple nutrients: a study between and within feeding guilds. Professor Simpson was also awarded an A.R.C. Federation Fellowship ($A 1,500,000 with matching funding from University of Sydney) for 2005-2010.

Resource (The Council for Museums Archives and Libraries) awarded the Collections a
PReservation of Industrial and Scientific Material (PRISM) a grant of £19,765 to employ an Entomological Technician to work on the Dale Collection for a year;

Mr O'Toole was awarded a grant of £11,898 by the John Spedan Lewis Foundation to finance the purchase of new cabinets to re-house historical collections of bees.

Dr Pont (together with Dr D. Werner) received £1,200 from the Cherwell District Council for a black fly survey. Dr Pont also received 1990 Euros from the Deutscher Akademischer Austauschdienst (DAAD) for visit to Berlin.

Geological Collections

Dr Siveter received £1,000 from the Royal Society for a research visit to China, to examine Cambrian invertebrates, and £500 from English Nature for fieldwork related to the Herefordshire (Silurian) Konservat-Lagerstätte.

Environmental Archaeology Unit

Dr Robinson received a grant of £495 from the Royal Archaeological Institute for sorting samples from the Roman fort at Alchester. The Deutsches Archäologisches Institut, Berlin contributed £1,000 to the cost of fieldwork at Pompeii.

Appendix 4: Research Projects

The Hope Entomological Collections

Professor Simpson continued his work on geometric models of nutrition, expanding the system derived from work on insects to vertebrates including humans. He also continued his research on phase change in locusts.

Dr McGavin continued his work on Tanzanian canopy faunas and started a study of neotropical Membracidae with Mr Mann.

Mr O'Toole was engaged on various research topics for the Oxford Bee Company. Bees from the Lesbos component of the Mediterranean Pollinator Initiative have now been identified and incorporated into the exotic bee collection. A new species of bee has been added to the British list, the mason bee *Osmia fulviventris* (Panzer). In the UK, successful pollination trials using the Red Mason Bee, *Osmia rufa,* as a managed pollinator, were conducted in blueberry and apple orchards and strawberry tunnels. Successful trials were also carried out at a UK seed producer, Herbiseed Ltd, with enhanced yield, especially with *Silene* spp. and a five-fold increase in seed production of Green Alkanet, *Pentaglottis sempervirens,* a new source of *omega*-oils. In connection with this, mass indoor rearing facilities for *Osmia rufa* are being established in the UK. Similar facilities are also being established in Europe and Europe for both *Osmia rufa* and *O. cornuta.*

Mr Mann undertook a number of research projects, including a study of the Heteroptera Types of Douglas and Scott and Saunders in British museums, the lost Marsham types of British Scarabaeidae published in *Entomologica Britannica* 1802 and the types of Scarabaeidae published in early British literature. He also traced around 50 unrecognised Types of insects primarily in the Oxford Collections including George Newport's Myriapoda types. Study trips for research included Plymouth City Museum, The Natural History Museum (London), The National Museum of Wales (Cardiff), Cambridge University Museum, York Museum, Bolton City Museum, Manchester Museum and Liverpool Museum. He continued his studies on the distribution and ecology of Bolivian Scarabaeinae (Scarabaeidae) with Ms Caroli Hamel and aridity gradient effects on dung beetle (Scarabaeinae and Aphodiinae) assemblages in Namibia, with staff from the National Museum of Namibia. In addition he completed his study of the beetle communities on re-created and natural MG4 Grasslands in Oxfordshire in partnership with Dr. B.A. Woodcock (University of Reading).

During the year Mr Mann visited Bolivia and spent six weeks conducting research and teaching, funded by the Darwin Initiative, as part of a training programme for Bolivian entomologists. He also visited South Africa for three weeks as part of an ongoing project looking at the distribution of South African water beetles, with view to publication of a *Red Data Book* of South African water beetles.

Mr Hogan, in addition to work connected with his Ph.D. project, continued his study of the ground beetles of Los Volcanes Reserve, Bolivia.

Dr Pont continued his work on the Diptera described by F. Kowarz, largely based on collections in the Hope Entomological Collections and also on the species of Muscidae described by P.Stein and by J. W. Zetterstedt. In collaboration with Dr Doreen Werner, Dr Pont worked on the types of Muscidae and Fanniidae in the Berlin Museum für Naturkunde. In connection with his research Dr Pont visited the Naturhistorisches Museum, Vienna, Cambridge University Zoology Museum, the Museum für Naturkunde, Berlin (funded by Deutscher Akademischer Austauschdienst), Leeds University and Leeds Museum and Institut royal des Sciences Naturelles de Belgique, Brussels

Together with Dr D. Werner, Humboldt University, Dr Pont carried out a field investigation of the black flies (Simuliidae) and their dipteran predators in the Oxford district and a survey of the black flies of the Cherwell Valley between Banbury and Oxford. He also spent a week at Obergurgl in the Austrian Tyrol, 7-14 July 2004, to study Muscidae at and above the tree line.

Dr Ismay spent three days in Berlin and six days in Eberswalde, Germany studying types of Chloropidae. He attended the Arbeitskreis Diptera meeting in Bielefeld, the Dipterists Forum Field Meeting in Wiltshire, and attended the Fourth Invertebrate Link (JCCBI) Conference in Peterborough.

He continued work on his revisions of British and Australasian Chloropidae and continued to work on Namibian Chloropidae in collaboration with the National Museum of Namibia. He is also collaborating on a revision of the Chloropidae of Madagascar with Ms B. Schulten, Dr F. Menzel (Deutsches Entomologisches Institut) and Dr M. von Tschirnhaus (University of Bielefeld). The surveys of Diptera in Burnham Beeches' National Nature Reserve (Buckinghamshire) and Epping Forest (Essex), both managed by the Corporation of London, continued and the project studying the Diptera and Coleoptera of Chigwell Row Wood, Essex, funded by an English Nature Grant, was completed. Dr Ismay continued to be part of a project using invertebrates and plants to study the effect of different grazing regimes on Salisbury Plain Training Area. This project is funded by Ministry of Defence and NERC funded project. Dr Ismay and Mr D. Mann commenced a six-year study of insects at a National Trust property in Devon, and identified Diptera from the Royal Society for the Protection of Birds' reserve at Abernethy, Scotland. The latter project revealed three species of Diptera new to Britain.

Mr Henshaw continued to work on the Survey of Epping Forest, and has provided identifications of Agromyzidae for members of the National Institute of Agriculture and Technology, University of Suwon, South Korea.

Mr Ackland continued his studies of Anthomyiidae from the Caucasus collected by Dr Pont ,and started the identification of Anthomyiidae collected in Pakistan by Dr McGavin and Mr Mann. He continued to revise provisional keys and illustrations for the identification of British Anthomyiidae, which are now available as test keys on a compact disc. He also worked on the identification of Anthomyiidae collected by B.Merz in the Swiss Alps, which has resulted in 32 species being recorded for the first time.

Geological Collections

Dr Siveter continued to research the Silurian fossils of the Herefordshire Konservat-Lagerstätte from the Welsh Borderland. These exceptionally preserved three-dimensional specimens are providing unrivalled insights into the palaeobiology of a variety of ancient invertebrates for a time (425 Ma) in Earth history for which there are almost no soft-bodied faunas known. This work, funded by the Leverhulme Trust (£155.6K over three years), utilises computer-based reconstructions of the fossils to investigate their palaeobiology, and is being done with Postdoctoral Research Associate Mark Sutton (Oxford) and colleagues from the universities of Leicester and Yale. Research completed this year from this special preservation horizon includes that on ostracode (published in *Science*) and phyllocarid crustaceans, and a vermiform mollusc. Dr Siveter's work over the last several years on the Lower Cambrian fossils from the Chengjiang Lagerstätte, in collaboration with colleagues from Kunming, Leicester and Stockholm and supported by a Royal Society grant, saw the completion in 2004 of a book by them on this globally important fossil horizon. The localities around Chengjiang are providing fundamental evidence relevant to the evolution of early (525 Ma) animal life. Dr Siveter also completed, together with P. D. Lane (Keele) and R. A. Fortey (London), the editing of *Trilobites and their relatives*, a multi-authored volume containing 23 papers that resulted from the *Third International Conference on Trilobites*, a symposium that he organised in the Museum in 2001. Additionally he contributed, together with Zhou Zhiyi, Yuan Wenwei (both Nanjing) and Zhou Zhiqiang (Xi'an), two papers on Ordovician trilobites from central China to this volume.

Mr Jeffery continued to work on describing a new genus of bivalve from the Early Eocene of western Europe, and on a first record of marine bivalves in terrestrial amber (originally identified as fungal sporangia) from the Miocene of Mexico.

Professor Kennedy completed work on the publication of the Global boundary Stratotype Section and point for the base of the Turonian stage, which is now in press in *Episodes*. The study of two major faunas from the mid-Cretaceous of Texas (the Paw Paw Formation and the Mainstreet Limestone, Grayson Marl and Del Rio Clay) were completed and are in press. Continuing collaboration with A.S. Gale (Greenwich), I. Waleszczyk (Warsaw), and S. Voigt (Cologne) resulted in an integrated ammonite, inoceramid bivalve, carbon and oxygen isotope study that enabled intercontinental correlation around the Cenomanian-Turonian boundary with a precision of around 20,000 years, corresponding to the precession cycle, and at the limit of global correlation. Work on the youngest, Upper Maastrichtian, ammonites from the Global boundary Stratotype Section and Point at El Kef, Tunisia, with Belgian colleagues, S. Godaents, C. Dupuis, and E. Steurbat was completed. Research of a different kind followed the deaths of two close colleagues, Professsor J.M. Hancock (Shaftesbury) and Dr W.S. McKerrow (Oxford). The former left his substantial collections and archives to the Museum. The papers of the latter were donated by his family, and will be catalogued by Mrs J. Alton.

Mineralogical Collections

Dr Waters continued with research projects established in the Department of Earth Sciences before taking up the curatorship. These include work on the metamorphism and tectonics of the Himalayan chain in Oman, Pakistan, India, Nepal, China (Tibet) and Myanmar with Dr M.P. Searle, Professor R.R. Parrish (NIGL, Keyworth), three graduate students and one MEarthSc student, and a study of the chemistry of accessory minerals (monazite, zircon, xenotime, apatite) in high grade metamorphic and magmatic rocks, with Dr Norman Charnley, Professor Laurence Robb and one MEarthSc student. An old project on the petrology of metamorphic borosilicate minerals, in collaboration with Professor John Moore (Rhodes University, SA) and Professor Ed Grew (University of Maine, USA), gave rise to a publication during the year.

Miss Price and Mrs Cooke continued research on the Corsi collection and catalogue. Miss Price has also been investigating fakes and falsified data associated with former curatorial assistant Arthur Kingsbury, a collaborative project with staff of the Natural History Museum, London. She has been working with Mr James on web sources for checking locality data for mineral specimens.

Zoological Collections

Dr Kemp completed his literature research on the pattern of evolution of mammal-like reptiles and mammals.

Dr De Grave continued his research into the systematics, taxonomy and biogeography of various crustacean groups.

Mrs Nowak-Kemp continued her research into the history of medical, anatomical, and human material in Oxford University, which resulted in internal reports on the human skull casts and the history of the Tasmanian cranial specimens.

Environmental Archaeology Unit

Dr Robinson investigated further remains from the Roman conquest fort at Alchester. A wine strainer from the site was found to contain numerous celery seeds. The Roman author, Pliny the Elder, described the use of celery seeds to rid wine of a bad odour. The discovery conjures up the image of miserable Roman soldiers a long way from home having to drink wine which had deteriorated. Other finds from the site include the earliest British example of the grain weevil *Sitophilus granarius*, which had probably been imported with the grain supply to the army. Analysis of mineralised plant and insect remains from late Roman Silchester showed that it retained a fully urban character, complete with continental imports, until the abandonment of the town in the 5th century AD.Dr Robinson continued his research on the prehistoric fauna of Britain. Work is concentrating on evidence for temporary clearings in Mesolithic and Neolithic woodland.

Appendix 5: New Acquisitions

The Hope Entomological Collections

In addition to numerous smaller donations and accessions, major new accessions include:
ca. 1000 insects of various orders from the Danum Valley, Borneo (Daniel Bebber)
4 paratypes of *Eustsrangalis masatakai* Ohbayashi, (Coleoptera: Cerambycidae) (Akihiro Yoshitomi).
ca. 4000 insects from Bolivia (D.J.Mann and Caroli Hamel).
ca. 2000 insects from Las Cuevas Research Station, Belize (Rachel Pateman).
3 male paratypes of *Eudorylas gemellus* Kehlmaier (Diptera: Pipunculidae) (Mike Ackland).
1 paratype juvenile of *Tyrannophasma gladiator* Zompro (Mantophasmatodea) (Oliver Zompro).
2 paratypes of *Aphodius baileyi* Skelley and Gordon (Coleoptera: Scarabaeidae) (Paul Skelley).
14 type specimens of aquatic Hemiptera (Ivor Lansbury).

Geological Collections

By donation
Approximately 1200, chiefly Mesozoic, ammonites from Dorset and the Isle of Skye, through donations from John Callomon and John Wright.

By bequest
The Cretaceous collections and archives of Professor John Michael ('Jake') Hancock (1928-2004) of Imperial College, London.
The archive and geological library of Donald Baden-Powell (1897-1973).

By fieldwork
Silurian soft-bodied invertebrates from the Herefordshire Lagerstätte.

Mineralogical Collections

By donation

Minerals
Corundum var. sapphire, staurolite and topaz from the USA (Mr R. Bonewitz)
Beryl and quartz from Moray/Aberdeenshire borders, Scotland (Mr N. Hubbard)
Azurite with aurichalcite, and harmotome from Powys; galena, goethite and manganese oxides from Argyll and Bute; quartz and feldspar from Moray/Aberdeenshire borders, and actinolite, baryte, diopside, epidote, fluorite, monazite and rutile from the Highlands of Scotland (Mr R. Starkey)
Actinolite with zoisite var. thulite from Zimbabwe (Mr K. Walsh)
Eudialyte from Brazil (Professor J.F. Wilson via Mr K. Walsh)

Rocks
Volcanic rocks from Italy, Tenerife, New Zealand and other rock samples from Cornwall, Rutland, North Wales, central and northern Scotland, and Australia, a total 138 samples (Mr T. Smith)
Large Proterozoic stromatolite from Magondi district, Zimbabwe (University of Zimbabwe)
Six stromatolitic limestones from Zimbabwe (Mr K. Walsh)
Instruments
Three historical goniometers, two manufactured by Stoe and the third by Techne Ltd. (Mr P.G. Embrey)

By purchase

Fine large pyrite specimen from Peru; 71 kg iron meteorite, part of a shower that fell at Nantan, China in 1516
Polished orbicular diorite from Australia

By transfer

781 rock samples from the Andes collected by S. Lamb, L. Hoke, and S. Aitcheson (Department of Earth Sciences via Dr S. Lamb)
Large folded gneiss from West Greenland (Department of Earth Sciences via Professor S. Moorbath)
A number of historic crystallographic instruments including goniometers, microscopes and accessories (Department of Chemical Crystallography via Dr D. Watkin)

Zoological Collections

By donation

Specimens of various North American *Palaemonetes* species, (Professor M. Hare, University of Maryland)
A worldwide collection of carideans, 45 species in total (Drs M Porter, Bingham University).
Collections of marine invertebrates from Ireland (Aquatic Services Unit, Cork)
A collection of Japanese Decapoda (Dr T. Komai, Natural History Museum, Chiba)
A collection of Decapoda from Svalbard (Drs C. d'Udekem d'Acoz, Trømso Museum)
A collection of Decapoda from Madeira and Cape Verde (Professor P. Wirtz, Canico)
Paratype material of *Batella* sp.nov. (Professor A. Myers, University of Cork)
Palaemon and *Palaemonetes* species from Ireland (Mr. G. Oliver)
South African littoral Crustacea (Mr D. Mann and J. Turner)
Brackish water Amphipoda from Ireland (Mr G. Oliver)
Paratype material of *Salmoneus* sp.nov. (Dr A. Anker, University of Alberta)
Brackish water Crustacea from Spain (Dr S. Herrando-Perez)
Caridean shrimp material from Auckland, New Zealand (Dr K. Tilbrook, University of Auckland)
Caridean shrimps from Cayos Cochinos (Honduras) (D Livingston and M. Dowell)

Various small collections and single samples, worldwide in origin (numerous donors)
A small collection of African mammal skulls, including impala, hyaena, and lion, an ostrich egg, and some elephant artifacts (Mrs G. Jones).
Buffalo skull, lioness skin and two snake skins (Mr R. Brayne)
A small collection of Palaearctic eggs (Mr M. Howells).
Eretmochelys imbricata (Mr G. Greenstreet)

By fieldwork

Crustaceans from Tobago (150+ samples) and northern Norway (50+ samples of shelf species). Various small collections of marine invertebrates from localities around UK, Spain and Belgium.

By purchase

Various casts of lower vertebrates for the new displays.

The Hope and Arkell Libraries

Library accessions, by purchase and donation, totalled: 105 books, 159 pamphlets, 38 periodical volumes, and 558 periodical parts (see the 'Donations' list below for explanation of this high figure). There are 114 current journal titles.

The following were significant donations made to the library during the course of the year:
Annals of the Entomological Society of America, **48**(1955)-**74**(1981) (which extends existing holdings) (Dr Judith Platt, Cornell University, NY)
Archer, M.E. (2002) *The wasps, ants and bees (Hymenoptera: Aculeata) of Watsonian Yorkshire*. J.A. Newbould for the Yorkshire Naturalists' Union, [Weymouth] (the author)
Diptera data dissemination disk[s]. v.1-2 [2 CD-ROMS] North American Dipterists' Society, Washington, D.C. (Dr Adrian Pont)
Ledezma, M.J. (2000) *Guia de campo de los escarabajos tigre (Coleoptera: Cicindelidae) de Bolivia.* Museo de Historia Natural..., Universidad Autonoma..., Santa Cruz de la Sierra, Bolivia. (Mr Darren Mann)
Monastyrskii, A.L. and Devyatkin, A.L. (2003) *Butterflies of Vietnam: (an illustrated checklist)*. Thong Nhat Printing House, [Vietnam] (Mr Darren Mann)
Tennent, John (2002) *Butterflies of the Solomon Islands: systematics and biogeography*. Storm Entomological Publications, Dereham, Norfolk. (Mr James Hogan)

Appendix 6: Loans

The Hope Entomological Collections

A total of 68 loans were issued during the year to researchers worldwide. The loans comprised 2828 specimens of which 634 were arachnids (46 types) and 2194 were insects (160 types).

Geological Collections

Eight loans were made, comprising 605 specimens. These included Ordovician cephalopods, Silurian brachiopods, Cretaceous crustaceans, and Jurassic and Recent cephalopods, and were sent to researchers in the UK and in The Netherlands.

Mineralogical Collections

There were six loans, comprising 86 specimens. A selection of material from the Stanton Ore Collection (part of the Accession Series) was loaned for teaching in the Department of Earth Sciences, to illustrate a new course in Ore-forming Processes given by Professor L.J. Robb and Dr D.J. Waters. Five samples were supplied for destructive research.

Zoological Collections

A total of 11 loans of 93 specimens of vertebrate were issued but increasingly researchers are requesting digital photographs of specimens to be sent electronically: 16 such photographs were sent this year. 21 loans of invertebrates were made, involving several hundreds of specimens.

Appendix 7: Enquiry and Identification Services

The Hope Entomological Collections

Staff and Honorary Associate Curators have, as usual, provided Oxford staff and students as well as amateur and professional entomologists around the world with identifications. There were over 280 enquiries; these ranged from identifications for the Environmental Health Department and public enquiries about fleas, cockroaches and other pests, to the identification of assorted insect and other invertebrate material brought in by members of the public. Dr McGavin continued to provide pest advice for various Oxford libraries and museums. This year there were numerous enquiries about hover flies and wasps, the increased numbers of which had been the subject of local and national media coverage.

Geological Collections

There were 64 specimen identification enquiries, mostly from the general public, as well as very many email and verbal requests for information. Enquiries from the general public ranged from the typical child's driveway finds to giraffe vertebrae dredged from the River Thames. One satisfied customer went so far as to give a glowing report in the *Independent on Sunday* as a result. Professional enquiries included requests for information on Carboniferous corals, Jurassic invertebrates and vertebrates, and on our holdings of Buckland and of Sollas material.

Mineralogical Collections

Eleven enquiries, comprising a total of 218 samples were identified for other institutions and for members of the public. There were many more non-identification enquiries; verbal, by post, and by e-mail.

Zoological Collections

In the vertebrate section, Mrs Nowak-Kemp answered 76 queries and identified 51 osteological specimens and one trackway photograph. Approximately 50 enquiries involving inverbrates were answered, and a number of identifications were made for researchers.

Appendix 8: Official Visitors

The Hope Entomological Collections

A total of 111 visits were made to the department by researchers from a number of countries including Japan, USA, Germany, Australia and Russia.

Dmitri Telnov from Latvia spent a week working on Anthicidae funded by the British Entomolgical and Natural History Society, and Caroli Hamel from Bolivia worked in the Collections for 2 months on Scarabaeinae funded by the Darwin Initiative.
Cecilia Dominguez, a Ph.D. student from the University of Mendoza, Argentina completed her study of the Neotropical species of Fanniidae (Diptera), and a cladistic analysis of the family, under the supervision of Dr Pont.

Silvio Nihei, a Ph.D. student from the University of Parana, Brazil completed his cladistic analysis of the tribe Muscini (Diptera), under the supervision of Dr Pont, and has been awarded his Ph.D. degree.

Dr Doreen Werner (Berlin, Germany), funded by the Royal Society, visited the Collections again, to study the black flies (Diptera, Simuliidae) and their dipteran predators in the Oxford district, in collaboration with Dr Pont.

Geological Collections

There were 88 scientific visits. In addition to UK scientists, researchers from Holland, Spain, Canada, the USA and China made use of the collections. Dr Ricardo Martinez of the University of Barcelona visited for five months to work on Cretaceous ammonites, in conjunction with Professor Kennedy. Specimens examined included Precambrian (Ediacaran) material, Carboniferous plants, Lower Palaeozoic trilobites, a range of Silurian, Jurassic, Cretaceous and Tertiary invertebrates, as well as Jurassic vertebrates.

Mineralogical Collections

Dr Leonore Hoke, formerly of the Research School of Earth Sciences, Victoria University of Wellington, New Zealand, visited to carry out the cataloguing of the Andes Rock Collection. There were 12 official visitors to the mineral and decorative rock collections. In addition there were a number of visiting parties, listed in the Public Education and Outreach section of this report.

Zoological Collections

There were 113 visitors to use the vertebrate collections, including primatologists, ornithologists, palaeontologists, historians, and artists. A delegation from Musée de l'Homme, Paris, was received in November.

Appendix 9: Statistics of (non-staff) libraries' use.

There were 237 visits made to the libraries. These break down as follows: 32 by undergraduates, 29 by postgraduates and senior members of the University, 54 by Honorary Associate Curators/Honorary Research Associates and 122 by visitors. 34 visits involved use of archives (not including the exhibition of archives for groups of visitors).
(*N.B.* Staff use this year accounted for more than half of the total usage and staff made extensive use of archives).

Inter-library loan requests for staff, honorary curators and postgraduates made to the British Library, etc., totalled 17. Of these 13 were successful. Loans made by the Radcliffe Science Library to the Librarian for staff numbered 30 items.

Loan/photocopy requests by other libraries totalled 15. 13 photocopies were supplied, and charged at the standard British Library rate.

There were 60 recorded queries and 4 requests for photographs (processed by the Librarian) from items held in the archives, books or journals.

Appendix 10: Publications

The Hope Entomological Collections

Ackland, M.D. and Bernhard M. (2003). New records of Anthomyiidae (Diptera) from Switzerland. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft*, **76**: 207–219.

Angus, R. B., Wilson, C. J., Maté, J. F., Hammond, P. M**.** and **Mann, D.J.** (2003). *Saprosites mendax* (Blackburn) and *S. natalensis* (Peringuey) (Scarabaeoidea, Aphodiidae), two species introduced into Britain. *Proceedings of the second pan-European Conference on Saproxylic Beetles*, 2003 People's Trust for Endangered Species, 72-76.

Barber, A.D. and **Mann, D.J.** (2004). Myriapod papers of R.S. Bagnall, 1889-1969. *Bulletin of the British Myriapod and Isopod Group*, **20**, 13-16.

Behmer, S.T., Cox, E., Raubenheimer, D. and **Simpson, S.J.** (2003). Food distance and its effect on nutrient balancing in a mobile insect herbivore. *Animal Behaviour*, **66**, 665-675.

Brecknell, S.M. (2004). The Hope Library, Oxford University Museum of Natural History. *Antenna*, **28**, 80-86.

Colenutt, S., Denton, J., Godfrey, A., Hammond, P., **Ismay, J.W**., Lee, P., Macadam, C., Morris, M.G., Murray, C., Plant, C., Ramsay, A., Schulten, B., Shardlow, M., Stewart, A., Stubbs, A.E., Sutton, P., Telfer, M., Wallace, I., Willing M. and Wright, R. (2003). *Managing Priority Habitats for Invertebrates. UK BAP Priority Habitats: Habitat sections 1 – 32*. Buglife The Invertebrate Conservation Trust. (Published on CD)

Dallai, R., Lupetti, P., Giusti, F., Mercati, D., Paccagnini, E., Turillazzi, S., Beani, L. and **Kathirithamby, J**. (2004). Fine structure of the Nassonow's gland in the neotenic, endoparasitic female of *Xenos vesparum* (Rossi) (Strepsiptera, Insecta). *Tissue & Cell*, **36**(1), 211-220.

Despland, E., Rosenberg, J. and **Simpson, S.J.** (2004). Landscape structure and locust swarming: a satellite's view. *Ecography*, **27**, 381-391.

Elmer, M., and **Pont, A. C.** (2003). The unknown female of *Fannia limbata* (Tiensuu, 1938) (Diptera, Fanniidae). *Studia dipterologica*, **10**(1): 197-198.

Haegele, B.F., Wang H-F., Sehnal, F. and **Simpson, S.J.** (2004). Effect of crowding, isolation, and transfer from isolation to crowding on the total ecdysteroid content of eggs in *Schistocerca gregaria*. *Journal of Insect Physiology*, **50**, 621-628.

Henshaw, D. (2003). Kenneth Angus Spencer - Obituary. *British Journal of Entomology and Natural History*, **16**, 205-207.

Hughes, D.P., **Kathirithamby, J.**, Turillazzi, S. and Beani, L. (2004). Social wasps desert the colony and aggregate outside if parasitized: parasite manipulation? *Behavioural Ecology*, **10**,

Hughes, D. P., Pamilo, P. and **Kathirithamby. J**. (2004). Horizontal transmission of *Wolbachia* by strepsipteran endoparasites? a response to Noda, *et al,* 2001. *Molecular Ecology,***13**(2), 507-509.

Ismay, J.W. and Schulten, B. (2003). Acalyptrata – Snail-killing flies, Picture-wing flies, Grass flies and Allies. *In*: *Managing Priority Habitats for Invertebrates,* **1**, 1–156. Buglife The Invertebrate Conservation Trust. (Published on CD)

Ismay, J.W. and Schulten, B. (2003). A new species of *Polyodaspis* (Diptera, Chloropidae) from Hungary. *Folia entomologica hungaria*, **64,** 341-344.

Ismay, J.W. and Webb, J.A. (2002). A recent record of *Odinia hendeli* Collin (Dipt., Odiniidae) from Oxfordshire. *Entomologist's monthly Magazine*, **138,** 224.

Kathirithamby, J. and Johnston, J.S. (2004) The discovery after 94 years of the elusive female of a myrmecolacid (Strepsiptera), and the cryptic species of *Caenocholax fenyesi* Pierce *sensu lato. Proceedings of the Royal Society of London,* B Suppl. (3), **271**, S5-S8.

Lee, K.P., Raubenheimer, D. and **Simpson, S.J.** (2003). A correlation between nutrient balancing and insect host-plant range: evidence from the specialist caterpillar *Spodoptera exempta*. *Journal of Insect Physiology*, **49**, 1161-1171.

Lee, K.P., Raubenheimer, D. and **Simpson, S.J.** (2004). The effect of nutritional imbalance on compensatory feeding for cellulose-mediated dietary dilution in a generalist caterpillar. *Physiological Entomology*, **29**, 108-117.

Mann, D.J., **Hogan, J.E.** and **Brecknell, S.** (2003). Edward Holt Eason: His Archives and Collection in The Hope Entomological Collections. *Bulletin of the British Myriapod and Isopod Group*, **19**, 42-44.

Moya-Roygoza G., **Kathirithamby, J.** and Larsen, K. J. (2004). Dry season parasitoids of the corn leafhopper (Homoptera: Cicadellidae). *Canadian Entomologist*, **136**, 119-127.

Munari, L., and **Pont, A. C.** (2004). The identity of *Milichia tamaricis* Bigot, 1888 (Diptera, Tethinidae). *Dipterists Digest,* **11**, 11-15, 3 figs.

Opstad, R., Rogers, S.M., Behmer, S.T. and **Simpson, S.J.** (2004). Behavioural correlates of phenotypic plasticity in mouthpart chemoreceptor numbers in locusts. *Journal of Insect Physiology*, **50**, 725-736.

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